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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/748,008	12/30/2003	Luc Van Brabant	10830.0103NP	6494
27927 7590 09/26/2007 RICHARD AUCHTERLONIE NOVAK DRUCE & QUIGG, LLP 1000 LOUISIANA 53RD FLOOR HOUSTON, TX 77002			EXAMINER WANG, HARRIS C	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/748,008

Applicant(s)

VAN BRABANT, LUC

Examiner

Harris C. Wang

Art Unit

2139

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1.

Claims 1-28 are pending

Claims 6-7, 12, 24 have been amended

### ***Response to Arguments***

Applicant's arguments filed 7/19/2007 have been fully considered but they are not persuasive.

The Applicant first argues, "Edwards teaches that a particular problem with the Edwards FIG. 1 prior art on-access anti-virus scanner can be solved by adding a priority queue 220 to produce the on-access antivirus scanner shown in Edwards FIG. 2. Although it would be possible for an on-demand anti-virus scanner to have a queue, it is not understood how the virus scan queue of Edwards would or should be modified to include an on-access anti-virus scanner and an on-demand anti-virus scanner." (pg. 15 of Remarks).

The Examiner points to the Office Action (pg. 3), "Edwards does teach both on-demand and on-access virus scan requests (*"Virus scanners may be invoked on-demand by a computer user to scan a selected file. More typically, virus scanners install themselves as part of an operating system and then scan files, according to user preferences, as the files are created and accessed. This type of virus scanner is referred to as an on-access virus scanner."*)

The Applicant then writes "applicant's claim 1 is not calling for a virus scan queue including concurrent on-access and on-demand scanners. Instead, applicant's claim 1

calls for combining on-demand anti-virus scan requests and on-access virus scan requests in a virus" (pg. 3 of Remarks)

The Examiner argues that concurrent on-access and on-demand scanners will produce concurrent on-access and on-demand scan requests.

The Applicant then argues "In contrast to Edwards and Novell, the applicant's specification teaches that it is desirable to use the same virus checkers for on-demand and on-access virus checking. This leads to several problems because the priority and workload for the on-demand scan requests are so much different from the priority and workload for the on-access scan requests" (pg. 16 of Remarks)

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "to use the same virus checkers for on-demand and on-access virus checking") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant then argues "The fact that the on-demand scan request have priority and workloads that are so much different from the priority and workloads of the on-access scan requests, and the fact that Novell teaches that an on-demand virus checker should be used for on-demand scan requests and an on-access virus checker should be used for on-access scan requests, teach away from treating the on-demand scan requests and the on-access scan requests in a similar fashion by combining them in virus scan request queue for distributing virus checkers" (pg. 17-18 of Remarks).

The Examiner responds that an on-demand scan request is not so different from an on-access scan request. Although the usage of on-access and on-demand are different, the scan request, as claimed, is just simply another request.

The prior art Edwards included each element claimed (on-demand scan requests, on-access scan requests, priority scan request queue) and one of ordinary skill in the art could have combined the elements as claimed by known methods (having concurrent on-access and on-demand scan requests as taught by Novell) and that in combination, each element merely would have performed the same function as it did separately. One of ordinary skill in the art would have recognized that the results of the combination were predictable.

The Applicant's arguments concerning Novell are similarly unpersuasive. First, as mentioned before, the Applicant's claim language does not recite the limitations that "the same virus checkers are used for on-demand and on-access virus checking" so that argument is considered spurious and unpersuasive. Second, even if on-demand scan checkers were used for on-demand scan requests and on-access scan checkers were used for on-access scan requests, this does not teach away from combining on-access and on-demand scan requests in a single queue in any way. As shown by Figure 2, of Edwards, the Priority Scan Request Queue 220 is shared by a plurality of Scanner Threads 130. How this teaches away from combining on-access and on-demand scan requests in the same priority queue is unclear.

The Applicant then argues, "With reference to applicant's claim 5, it is not seen where Edwards or Novell gives on-access anti-virus scan requests priority over on-

demand anti-virus scan requests. (pg. 18 of Remarks).” Applicant then details several passages of Edwards.

The Examiner responds that in the Office Action, the Examiner shows Edwards teaches giving priority based on certain characteristics, and while Edwards does not explicitly teach the characteristics are whether the type of scan is on-demand or on-access, one of ordinary skill would be able to modify the method of Edwards to include the type of virus scan. (pg. 5 and 6 of Office Action)

The Applicant then argues “Nor is it understood how Edwards...discloses inhibiting the placement of any particular kind of virus scan requests onto the virus scan request queue when the number of anti-virus scan requests on the queue reaches a threshold (pg. 18 of Remarks).”

The cited art Edwards col. 5, line 65 to col. 6, line 3 “For example, using the scan request’s user characteristics, a pending scan request from user A may be determined to be more suitable than a pending scan request from user B if three of the four scanner threads are already scanning scan request from user B.” The Examiner interprets the inhibition of placement, as taking scan requests B and putting it at a lower priority. The Examiner interprets the threshold that is reached in the queue as 3.

The Applicant then argues “the embodiment of Edwards in which the scan prioritizer places the scan request on the priority queue in some pre-defined order rather than the order in which the scan request was received, e.g. executable files first and data files second, is different from grouping the data files into a chunk, and placing the

chunk on the queue (pg. 20).” The Examiner disagrees, and believes the rejection in the Office Action adequately teaches the limitations of the claim.

The Applicant then argues “Applicant’s claim 7 calls for inhibiting the placement of at least one of the chunks onto the virus scan request queue until completion of anti-virus scanning for the anti-virus scan request in a prior one of the chunks. This is clearly different from simply scanning one type of grouped scans before scanning another type of grouped scans (pg. 20 of Remarks).” The Examiner disagrees, and believes the rejection in the Office Action adequately teaches the limitations of the claim.

The Applicant then argues “Edwards giving priority to one type of on-access scans over another type of on-access scans (scans of data files) to solve a particular problem in an on-access virus checker does not suggest that on-demand virus scans should be grouped into chunks for distribution of the on-demand virus scan requests for each chunk over virus checkers that concurrently perform on-demand and on-access virus checking. (pg. 21 of Remarks)”

As discussed in the Office Action, the Examiner believes Edwards teaches grouping certain types of scans based on one characteristic and given priority another type of scans based on another characteristic. The Examiner believes that on-demand and on-access are a characteristic of a certain type of scanning. The Examiner believes that because concurrent on-demand and on-access scanning, and as a result concurrent on-access and on-demand scan request, are common; it would have been obvious to one of ordinary skill in the art at the time of the invention to group “chunks” of on-demand scans and distribute the scan requests to virus checkers.

Then the Applicant argues "With respect to applicant's claim 17, the virus checkers of Edwards or Novell would not be separate from the file server. (pg. 22)" The Applicant's arguments that because the priority queue and preprocessor threads and scan prioritizer are in the same Figure 2, this is "suggesting that the processor that services the priority queue also executes the pre-processor threads and the scanner threads" (pg. 22 of Remarks). The Applicants arguments are not persuasive, as just because the components are on the same page, does not mean they are integrated. Further Edwards teaches "It is understood that modules may be implemented on a single computing device, or processed over a distributed network environment." (Column 8, lines 36-39).

The Applicant's arguments have been found unpersuasive, and the Examiner repeats the earlier Office Action.

### ***Claim Rejections - 35 USC § 103***

3.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards (7188367) in view of Novell's article: AntiVirus Solutions for Network.



Regarding Claims 1-3,

Edwards teaches a method of operating a plurality of virus checkers, the method comprising:

Distributing anti-virus scan requests from the virus scan request queue to the virus checkers. (*"The scan requests are placed on the priority queue as they are received; the scanner threads can then select a suitable scan request from the priority queue based on the scan request's characteristics and the current state of the other scanner threads in the pool"* Column 3, lines 19-23)

Although Edwards does teach both on-demand and on-access virus scan requests (*"Virus scanners may be invoked on-demand by a computer user to scan a selected file. More typically, virus scanners install themselves as part of an operating system and then scan files, according to user preferences, as the files are created and accessed. This type of virus scanner is referred to as an on-access virus scanner"* Column 1, lines 43-48), Edwards does not explicitly teach wherein the scan request queue has on-demand anti-virus scanning concurrent with on-access anti-virus scanning.

Novell teaches that *"Command Anti-Virus with F-PROT Professional 4.52 for NetWare offers analysis, which includes both an on-access scanner and an on-demand scanner to search for polymorph addition, you can configure multiple concurrent scans (pg. 1)"*

It would have been obvious to one of ordinary skill in the art to combine the virus scan queue of Edwards to include concurrent on-access and on-demand scanners.

The motivation to combine is that it is well known in the virus scanning art to have both on-demand and on-access scanners running concurrently. Novell provides an example of such a system.

The Examiner interprets the "user to scan a selected file" from the Edwards reference as a system administrator requesting a scan of files.

Regarding Claim 4,

Edwards and Novell teach the method as claimed in claim 1, wherein a pool of threads distribute the on-demand anti-virus scan requests and the on-access anti-virus scan requests from the virus scan request queue to the virus checkers, each anti-virus scan request on the virus scan request queue being serviced by a respective one of the threads in the pool of threads. (*"The scanner thread determines whether the object of the intercepted event...needs scanning and, if so, scans the object. Multiple scanner threads are typically provided in pools that are capable of executing concurrently"* Column 2, lines 18-24)

Regarding Claims 5-7,

Edwards and Novell teach the method as claimed in claim 1, wherein certain scan requests are given priority based on certain characteristics by not inhibiting a first kind of scan requests while inhibiting the placement of a second kind of scan requests based on a second group of characteristics when the number of anti-virus scan requests on the virus scan request queue reaches a threshold. (*"a pending scan request from user A may be determined to be more suitable than a pending scan request from user B if three of the four scanner threads are already scanning scan requests from user B. This prevents a single user B from monopolizing the virus scanner (Column 5, lines 66-67, Column 6, lines 1-3)."*)

Edwards also teaches grouping individual scan requests into chunks based on characteristics, and placing the chunks onto the virus scan request queue. Edwards further teaches scanning one type of grouped scans until completion before scanning a second type (*"the scan request is placed on the priority queue in...some other pre-defined fixed order, e.g. executable files first and data files second"* Column 7, lines 33-34, Edwards). The Examiner interprets the fixed order as inherently requiring grouping different scan characteristics into groups or chunks.

However Edwards does not explicitly teach that on-access scan requests are given priority over the on-demand anti-virus scan requests by inhibiting placing on-demand scan requests into the scan request queue.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Edwards to include the type of virus scan (on-access or on-demand) as "certain additional characteristics about scan requests."

The motivation is the different types of scans are an important characteristic of scans, and as both on-access and on-demand virus scans each have their own benefits, it would be useful to prioritize based on their type.

Edwards does not explicitly teach that the scan requests would be grouped into chunks are on-demand scan requests.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Edwards to group on-demand scan requests into chunks.

The motivation is that Edwards already groups scan requests into chunks based on certain characteristics and the type of virus scan (on-demand or on-access) is a characteristic of a virus scan.

The Examiner interprets the original claim language "grouping the on-demand anti-virus scan requests into chunks of multiple ones of the on-demand anti-virus scan requests" as just "grouping individual on-demand requests into chunks."

The Examiner further interprets inhibiting the placement of at least one of the chunks onto the virus scan request queue until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks as scanning one type of grouped scans until completion before scanning a second type.

Regarding Claims 8-11,

Edwards teaches a method of operating a plurality of virus checkers, the method comprising:

Distributing anti-virus scan requests from the virus scan request queue to the virus checkers. (*"The scan requests are placed on the priority queue as they are received; the scanner threads can then select a suitable scan request from the priority queue based on the scan request's characteristics and the current state of the other scanner threads in the pool"* Column 3, lines 19-23)

Edwards also teaches grouping individual scan requests into chunks, and placing the chunks onto the virus scan request queue. Edwards further teaches scanning one type of grouped scans until completion before scanning a second type (*"the scan request is placed on the priority queue in...some other pre-defined fixed order, e.g. executable files first and data files second"* Column 7, lines 33-34, Edwards). The Examiner interprets

the fixed order as inherently requiring grouping different scan characteristics into groups or chunks.

Although Edwards does teach both on-demand and on-access virus scan requests (*"Virus scanners may be invoked on-demand by a computer user to scan a selected file. More typically, virus scanners install themselves as part of an operating system and then scan files, according to user preferences, as the files are created and accessed. This type of virus scanner is referred to as an on-access virus scanner"* Column 1, lines 43-48), Edwards does not explicitly teach wherein the scan request queue has on-demand anti-virus scanning concurrent with on-access anti-virus scanning.

Novell teaches that *"Command Anti-Virus with F-PROT Professional 4.52 for NetWare offers analysis, which includes both an on-access scanner and an on-demand scanner to search for polymorph addition, you can configure multiple concurrent scans (pg. 1)"*

It would have been obvious to one of ordinary skill in the art to combine the virus scan queue of Edwards to include concurrent on-access and on-demand scanners.

The motivation to combine is that it is well known in the virus scanning art to have both on-demand and on-access scanners running concurrently. Novell provides an example of such a system.

The Examiner interprets the "user to scan a selected file" from the Edwards reference as a system administrator requesting a scan of files.

Edwards does not explicitly teach that the scan requests would be grouped into chunks are on-demand scan requests.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Edwards to group on-demand scan requests into chunks.

The motivation is that Edwards already groups scan requests into chunks based on certain characteristics and the type of virus scan (on-demand or on-access) is a characteristic of a virus scan.

Regarding Claims 12-15,

Edwards teaches a method of operating a plurality of virus checkers, the method comprising:

A pool of threads distribute the on-demand anti-virus scan requests and the on-access anti-virus scan requests from the virus scan request queue to the virus checkers, each anti-virus scan request on the virus scan request queue being serviced by a respective one of the threads in the pool of threads. (*"The scanner thread determines whether the object of the intercepted event...needs scanning and, if so, scans the object. Multiple scanner threads are typically provided in pools that are capable of executing concurrently"* Column 2, lines 18-24)

Distributing anti-virus scan requests from the virus scan request queue to the virus checkers. (*"The scan requests are placed on the priority queue as they are received; the scanner threads can then select a suitable scan request from the priority queue based on the*

*scan request's characteristics and the current state of the other scanner threads in the pool"*

*Column 3, lines 19-23)*

Edwards also teaches grouping individual scan requests into chunks, and placing the chunks onto the virus scan request queue. Edwards further teaches scanning one type of grouped scans until completion before scanning a second type (*"the scan request is placed on the priority queue in...some other pre-defined fixed order, e.g. executable files first and data files second"* Column 7, lines 33-34, Edwards). The Examiner interprets the fixed order as inherently requiring grouping different scan characteristics into groups or chunks.

Although Edwards does teach both on-demand and on-access virus scan requests (*"Virus scanners may be invoked on-demand by a computer user to scan a selected file. More typically, virus scanners install themselves as part of an operating system and then scan files, according to user preferences, as the files are created and accessed. This type of virus scanner is referred to as an on-access virus scanner"* Column 1, lines 43-48), Edwards does not explicitly teach wherein the scan request queue has on-demand anti-virus scanning concurrent with on-access anti-virus scanning.

Novell teaches that *"Command Anti-Virus with F-PROT Professional 4.52 for NetWare offers analysis, which includes both an on-access scanner and an on-demand scanner to search for polymorph addition, you can configure multiple concurrent scans (pg. 1)"*



It would have been obvious to one of ordinary skill in the art to combine the virus scan queue of Edwards to include concurrent on-access and on-demand scanners.

The motivation to combine is that it is well known in the virus scanning art to have both on-demand and on-access scanners running concurrently. Novell provides an example of such a system.

The Examiner interprets the "user to scan a selected file" from the Edwards reference as a system administrator requesting a scan of files.

Edwards does not explicitly teach that the scan requests would be grouped into chunks are on-demand scan requests.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Edwards to group on-demand scan requests into chunks.

The motivation is that Edwards already groups scan requests into chunks based on certain characteristics and the type of virus scan (on-demand or on-access) is a characteristic of a virus scan.

The Examiner interprets the original claim language "grouping the on-demand anti-virus scan requests into chunks of multiple ones of the on-demand anti-virus scan requests" as just "grouping individual on-demand requests into chunks."

The Examiner further interprets inhibiting the placement of at least one of the chunks onto the virus scan request queue until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks as scanning one type of grouped scans until completion before scanning a second type.

Regarding Claim 16, 18-19

Edwards teaches a virus checking system comprising:

A plurality of virus checkers (*"Virus scanners may be invoked on-demand by a computer user to scan a selected file. More typically, virus scanners install themselves as part of an operating system and then scan files, according to user preferences, as the files are created and accessed. This type of virus scanner is referred to as an on-access virus scanner"* Column 1, lines 43-48),

A virus scan request queue (*Fig. 2, Priority Queue*);

A processor (*"An exemplary system for implementing the invention includes...a processor (or processing unit)"* Column 8, lines 37-45) coupled to the virus checkers and the virus scan request queue for sending virus scan requests from the virus scan request queue to the virus checkers (*"prioritize the scan requests by placing them in the priority queue"* Column 5, lines 40-42) ;

Distributing anti-virus scan requests from the virus scan request queue to the virus checkers. (*"The scan requests are placed on the priority queue as they are received; the scanner threads can then select a suitable scan request from the priority queue based on the*

*scan request's characteristics and the current state of the other scanner threads in the pool"*

*Column 3, lines 19-23)*

Although Edwards does teach both on-demand and on-access virus scan requests (*"Virus scanners may be invoked on-demand by a computer user to scan a selected file. More typically, virus scanners install themselves as part of an operating system and then scan files, according to user preferences, as the files are created and accessed. This type of virus scanner is referred to as an on-access virus scanner"* Column 1, lines 43-48), Edwards does not explicitly teach wherein the scan request queue has on-demand anti-virus scanning concurrent with on-access anti-virus scanning.

Novell teaches that *"Command Anti-Virus with F-PROT Professional 4.52 for NetWare offers analysis, which includes both an on-access scanner and an on-demand scanner to search for polymorph addition, you can configure multiple concurrent scans (pg. 1)"*

It would have been obvious to one of ordinary skill in the art to combine the virus scan queue of Edwards to include concurrent on-access and on-demand scanners and then to distribute these scan requests to the virus checkers.

The motivation to combine is that it is well known in the virus scanning art to have both on-demand and on-access scanners running concurrently. Novell provides an example of such a system.

The Examiner interprets the "user to scan a selected file" from the Edwards reference as a system administrator requesting a scan of files.

Regarding Claim 17,

Edwards and Novell teach the virus checking system as claimed in claim 16, wherein said at least one processor and said virus scan request queue are in a file server, and the virus checkers are separate from the file server. (*"pre-processor threads obtain certain additional characteristics about the scan requests...In a client/server environment, the characteristics may further include whether the object is being accessed from the server console or from a network client"* Column 5, lines 25-38)

Because the pre-processor threads are in between the server and the processor, the Examiner interprets the virus checkers as being separate from the file server.

Regarding Claim 20,

Edwards and Novell teach the virus checking system as claimed in claim 16, wherein said at least one processor is programmed to execute multiple threads for distributing the on-demand anti-virus scan requests and the on-access anti-virus scan requests from the virus scan request queue to the virus checkers, each anti-virus scan request on the virus scan request queue being serviced by a respective one of the threads in the pool of threads.

Art Unit: 2139

*("The scanner thread determines whether the object of the intercepted event...needs scanning and, if so, scans the object. Multiple scanner threads are typically provided in pools that are capable of executing concurrently" Column 2, lines 18-24)*

Regarding Claim 21,

Edwards and Novell teach the virus checking system as claimed in claim 16. Edwards teaches certain scan requests are given priority based on certain characteristics by not inhibiting a first kind of scan requests while inhibiting the placement of a second kind of scan requests based on a second group of characteristics when the number of anti-virus scan requests on the virus scan request queue reaches a threshold. *("a pending scan request from user A may be determined to be more suitable than a pending scan request from user B if three of the four scanner threads are already scanning scan requests from user B. This prevents a single user B from monopolizing the virus scanner (Column 5, lines 66-67, Column 6, lines 1-3)."*

However Edwards does not explicitly teach that on-access scan requests are given priority over the on-demand anti-virus scan requests by inhibiting placing on-demand scan requests into the scan request queue.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Edwards to include prioritizing based on the type of virus scan (on-access or on-demand) instead of based on User type.

The motivation is the different types of scans are an important characteristic of scans, and as both on-access and on-demand virus scans each have their own benefits, it would be useful to prioritize based on their type.

Regarding Claims 22 and 23,

Edwards and Novell teach a virus checking system as claimed in claim 16. Edwards also teaches grouping individual scan requests into chunks, and placing the chunks onto the virus scan request queue. Edwards further teaches scanning one type of grouped scans until completion before scanning a second type (*"the scan request is placed on the priority queue in...some other pre-defined fixed order, e.g. executable files first and data files second"* Column 7, lines 33-34, Edwards). The Examiner interprets the fixed order as inherently requiring grouping different scan characteristics into groups or chunks.

Edwards does not explicitly teach that the scan requests would be grouped into chunks are on-demand scan requests.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Edwards to group on-demand scan requests into chunks.

The motivation is that Edwards already groups scan requests into chunks based on certain characteristics and the type of virus scan (on-demand or on-access) is a characteristic of a virus scan.

The Examiner interprets the original claim language "grouping the on-demand anti-virus scan requests into chunks of multiple ones of the on-demand anti-virus scan requests" as just "grouping individual on-demand requests into chunks."

The Examiner further interprets inhibiting the placement of at least one of the chunks onto the virus scan request queue until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks as scanning one type of grouped scans until completion before scanning a second type.

#### Regarding Claims 24-26

Edwards teaches a virus checking system comprising:

A plurality of virus checkers (*"Virus scanners may be invoked on-demand by a computer user to scan a selected file. More typically, virus scanners install themselves as part of an operating system and then scan files, according to user preferences, as the files are created and accessed. This type of virus scanner is referred to as an on-access virus scanner"* Column 1, lines 43-48),

a file server coupled to the virus checkers for sending virus scan requests to the virus checkers, (*"pre-processor threads obtain certain additional characteristics about the*

*scan requests...In a client/server environment, the characteristics may further include whether the object is being accessed from the server console or from a network client" Column 5, lines 25-38)*

A virus scan request queue (Fig. 2, Priority Queue);

The file server is capable of distributing anti-virus scan requests from the virus scan request queue to the virus checkers. (*"The scan requests are placed on the priority queue as they are received; the scanner threads can then select a suitable scan request from the priority queue based on the scan request's characteristics and the current state of the other scanner threads in the pool" Column 3, lines 19-23)*

each anti-virus scan request on the virus scan request queue being serviced by a respective one of the threads in the pool of threads, (*"The scanner thread determines whether the object of the intercepted event...needs scanning and ,if so, scans the object. Multiple scanner threads are typically provided in pools that are capable of executing concurrently" Column 2, lines 18-24)*

Edwards also teaches grouping individual scan requests into chunks, and placing the chunks onto the virus scan request queue. Edwards further teaches scanning one type of grouped scans until completion before scanning a second type (*"the scan request is placed on the priority queue in...some other pre-defined fixed order, e.g. executable files first and data files second" Column 7, lines 33-34, Edwards*). The Examiner interprets the fixed order as inherently requiring grouping different scan characteristics into groups or chunks.



Although Edwards does teach both on-demand and on-access virus scan requests (*"Virus scanners may be invoked on-demand by a computer user to scan a selected file. More typically, virus scanners install themselves as part of an operating system and then scan files, according to user preferences, as the files are created and accessed. This type of virus scanner is referred to as an on-access virus scanner"* Column 1, lines 43-48), Edwards does not explicitly teach wherein the scan request queue has on-demand anti-virus scanning concurrent with on-access anti-virus scanning.

Novell teaches that *"Command Anti-Virus with F-PROT Professional 4.52 for NetWare offers analysis, which includes both an on-access scanner and an on-demand scanner to search for polymorph addition, you can configure multiple concurrent scans (pg. 1)"*

It would have been obvious to one of ordinary skill in the art to combine the virus scan queue of Edwards to include concurrent on-access and on-demand scanners.

The motivation to combine is that it is well known in the virus scanning art to have both on-demand and on-access scanners running concurrently. Novell provides an example of such a system.

The Examiner interprets the "user to scan a selected file" from the Edwards reference as a system administrator requesting a scan of files.

Edwards does not explicitly teach that the scan requests would be grouped into chunks are on-demand scan requests.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Edwards to group on-demand scan requests into chunks.

The motivation is that Edwards already groups scan requests into chunks based on certain characteristics and the type of virus scan (on-demand or on-access) is a characteristic of a virus scan.

The Examiner interprets the original claim language "grouping the on-demand anti-virus scan requests into chunks of multiple ones of the on-demand anti-virus scan requests" as just "grouping individual on-demand requests into chunks."

The Examiner further interprets inhibiting the placement of at least one of the chunks onto the virus scan request queue until completion of anti-virus scanning for the anti-virus scan requests in a prior one of the chunks as scanning one type of grouped scans until completion before scanning a second type.

Regarding Claims 27 and 28,-

Edwards teaches the virus checking system as claimed in claim 24/ Edwards discloses changing the priority of certain scans when a threshold is reached and allowing others when the same threshold is reached. Edwards writes "*a pending scan request from user A may be determined to be more suitable than a pending scan request from user B if three of the four scanner threads are already scanning scan requests from user B.*"

Art Unit: 2139

*This prevents a single user B from monopolizing the virus scanner (Column 5, lines 66-67, Column 6, lines 1-3)."*

Edwards also teaches grouping individual scan requests into chunks, and placing the chunks onto the virus scan request queue. Edwards further teaches scanning one type of grouped scans until completion before scanning a second type (*"the scan request is placed on the priority queue in...some other pre-defined fixed order, e.g. executable files first and data files second"* Column 7, lines 33-34, Edwards). The Examiner interprets the fixed order as inherently requiring grouping different scan characteristics into groups or chunks.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2139


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harris C. Wang whose telephone number is 5712701462. The examiner can normally be reached on M-F 8-5:30, Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, AYA Z R. SHEIKH can be reached on (571)272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HCW

  
AYA Z SHEIKH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100